CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 – 17 (canceled).

Claim 18 (currently amended). In a method for separating gas mixtures with a gas centrifuge, wherein a compressible process fluid is introduced into a double-walled rotor and the process fluid is compressed and separated due to centrifugal forces, wherein gas molecules with a relatively higher molecular weight contained in the gas mixture are enriched along an outer wall of the rotor, and portions of the process fluid with mutually different contents of the components contained in the gas mixture are carried away separately, the improvement which comprises:

introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor, with a gas mass flow being shaped and positively guided on a circular path as an axial distance increases through the flow channels in the compression area;

carrying the process fluid with a constant flow cross section in a centrifuged state in the double tube in flow channels in the area of the double-walled centrifuge rotor remote from the axis;

in the centrifuged state, separating the gas flow into a relatively heavy gas fraction and a relatively light gas fraction at a separating threshold dependent on a proportion by volume of the individual gases;

positively guiding, braking and carrying away the separate gas fractions separately with decreasing axial distance in the flow channels upstream of a transition from an area remote from the axis to the expansion area, as seen in a flow direction;

wherein an acceleration of the gas molecules in the compression area and the braking of the gas fractions in the expansion area are proportional to the mass; and

wherein the flow channels are formed between webs extending parallel to the axis, in the double-walled centrifuge rotor ~~The method according to claim 17, which comprises carrying the process fluid in flow channels formed between webs extending parallel to the axis, in the double-walled centrifuge rotor~~.

Claim 19 (currently amended). In a method for separating gas mixtures with a gas centrifuge, wherein a compressible process fluid is introduced into a

double-walled rotor and the process fluid is compressed and separated due to centrifugal forces, wherein gas molecules with a relatively higher molecular weight contained in the gas mixture are enriched along an outer wall of the rotor, and portions of the process fluid with mutually different contents of the components contained in the gas mixture are carried away separately, the improvement which comprises:

introducing the process fluid from an axial central supply tube into a widening enveloping area of the compression area of a double-walled centrifuge rotor, with a gas mass flow being shaped and positively guided on a circular path as an axial distance increases through the flow channels in the compression area;

carrying the process fluid with a constant flow cross section in a centrifuged state in the double tube in flow channels in the area of the double-walled centrifuge rotor remote from the axis;

in the centrifuged state, separating the gas flow into a relatively heavy gas fraction and a relatively light gas fraction at a separating threshold dependent on a proportion by volume of the individual gases;

positively guiding, braking and carrying away the separate gas fractions separately with decreasing axial distance in the flow channels upstream of a transition from an area remote from the axis to the expansion area, as seen in a flow direction;

~~The method according to claim 17, which comprises~~ using axial fans in a central supply tube and/or in a central outlet tube, with a differential pressure increased in order to overcome flow losses of the process fluid throughout an entire centrifuge; and

wherein an acceleration of the gas molecules in the compression area and the braking of the gas fractions in the expansion area are proportional to the mass.

Claims 20-21 (canceled).

Claim 22 (currently amended). In a method for separating gas mixtures with a gas centrifuge, wherein a compressible process fluid is introduced into a double-walled rotor and the process fluid is compressed and separated due to centrifugal forces, wherein gas molecules with a relatively higher molecular weight contained in the gas mixture are enriched along an outer wall of the rotor, and portions of the process fluid with mutually different contents of the components contained in the gas mixture are carried away separately, the improvement which comprises:

introducing the process fluid from an axial central supply tube into a widening enveloping area of a compression area of a double-walled centrifuge rotor, with

a flow cross section for the process fluid being proportional to a volume flow in the flow channels in the compression area;

carrying the process fluid, in the area of the double-walled centrifuge rotor remote from the axis, in the double tube in flow channels in proportion to the volume flow with a reducing flow cross section; and

separating the process fluid into a relatively heavy and into a relatively light gas fraction at a separating threshold, arranged concentrically as a function of a proportion by volume of individual gases, upstream of a transition from the area remote from the axis to an expansion area of the double-walled centrifuge rotor, as seen in a flow direction;

wherein the flow channels are formed between webs extending parallel to the axis, in the double-walled centrifuge rotor ~~The method according to claim 21, which comprises carrying the process fluid in flow channels formed between webs extending parallel to the axis, in the double-walled centrifuge rotor~~.

Claim 23 (currently amended). In a method for separating gas mixtures with a gas centrifuge, wherein a compressible process fluid is introduced into a double-walled rotor and the process fluid is compressed and separated due to centrifugal forces, wherein gas molecules with a relatively higher molecular weight contained in the gas mixture are enriched along an outer wall of the rotor, and portions of the process fluid with mutually different contents of the

components contained in the gas mixture are carried away separately, the improvement which comprises:

introducing the process fluid from an axial central supply tube into a widening enveloping area of a compression area of a double-walled centrifuge rotor, with a flow cross section for the process fluid being proportional to a volume flow in the flow channels in the compression area;

carrying the process fluid, in the area of the double-walled centrifuge rotor remote from the axis, in the double tube in flow channels in proportion to the volume flow with a reducing flow cross section;

separating the process fluid into a relatively heavy and into a relatively light gas fraction at a separating threshold, arranged concentrically as a function of a proportion by volume of individual gases, upstream of a transition from the area remote from the axis to an expansion area of the double-walled centrifuge rotor, as seen in a flow direction; and

~~The method according to claim 21, which comprises~~ using axial fans in a central supply tube and/or in a central outlet tube, with a differential pressure increased in order to overcome flow losses of the process fluid throughout an entire centrifuge.

Claims 24-25 (canceled).

Claim 26 (currently amended). In a method for separating gas mixtures with a gas centrifuge, wherein a compressible process fluid is introduced into a double-walled rotor and the process fluid is compressed and separated due to centrifugal forces, wherein gas molecules with a relatively higher molecular weight contained in the gas mixture are enriched along an outer wall of the rotor, and portions of the process fluid with mutually different contents of the components contained in the gas mixture are carried away separately, the improvement which comprises:

introducing the process fluid from an axial central supply tube into a widening enveloping area of a compression area of the double-walled centrifuge rotor, with a flow cross section for the process fluid being inversely proportional to a pressure in flow channels in a compression area;

in an area of the double-walled centrifuge rotor remote from a rotor axis, carrying the process fluid in a double tube in flow channels with a flow cross section decreasing in inverse proportion to a pressure; and

separating the process fluid into a relatively heavy and into a relatively light gas fraction at a separating threshold located concentrically as a function of a proportion by volume of the individual gases, upstream of a transition from the area remote from the axis to the expansion area of the double-walled centrifuge rotor, as seen in a flow direction;

wherein the flow channels are formed between webs extending parallel to the axis, in the double-walled centrifuge rotor ~~The method according to claim 25, which comprises carrying the process fluid in flow channels formed between webs extending parallel to the axis, in the double-walled centrifuge rotor~~.

Claim 27 (currently amended). In a method for separating gas mixtures with a gas centrifuge, wherein a compressible process fluid is introduced into a double-walled rotor and the process fluid is compressed and separated due to centrifugal forces, wherein gas molecules with a relatively higher molecular weight contained in the gas mixture are enriched along an outer wall of the rotor, and portions of the process fluid with mutually different contents of the components contained in the gas mixture are carried away separately, the improvement which comprises:

introducing the process fluid from an axial central supply tube into a widening enveloping area of a compression area of the double-walled centrifuge rotor, with a flow cross section for the process fluid being inversely proportional to a pressure in flow channels in a compression area;

in an area of the double-walled centrifuge rotor remote from a rotor axis, carrying the process fluid in a double tube in flow channels with a flow cross section decreasing in inverse proportion to a pressure;

separating the process fluid into a relatively heavy and into a relatively light gas fraction at a separating threshold located concentrically as a function of a proportion by volume of the individual gases, upstream of a transition from the area remote from the axis to the expansion area of the double-walled centrifuge rotor, as seen in a flow direction; and

~~The method according to claim 25, which comprises~~ using axial fans in a central supply tube and/or in a central outlet tube, with a differential pressure increased in order to overcome flow losses of the process fluid throughout an entire centrifuge.

Claims 28-61 (canceled).